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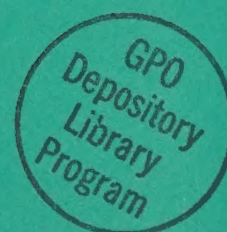


# Final Environmental Impact Statement

## Management of Western Spruce Budworm in Oregon and Washington

### Record of Decision

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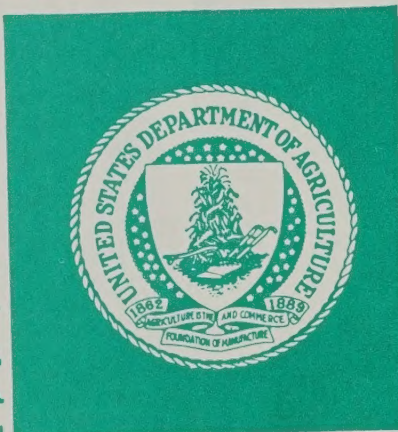




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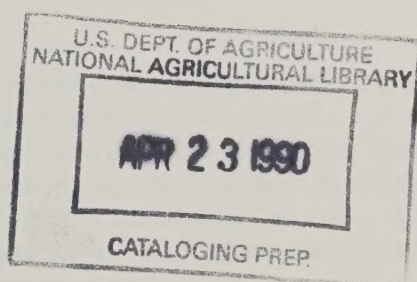
Record of Decision

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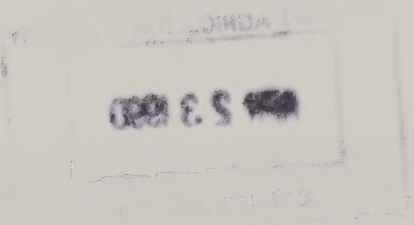
Management of Western Spruce Budworm in Oregon and Washington  
Final Environmental Impact Statement

USDA Forest Service  
Pacific Northwest Region

June 1989







Record of Decision  
Management of Western Spruce Budworm in Oregon and Washington  
Final Environmental Impact Statement

## INTRODUCTION

The Final Environmental Impact Statement (FEIS) documents results of the analysis of management Alternatives for the western spruce budworm epidemic in the Pacific Northwest Region. I have reviewed the FEIS and related materials, including responses to the Draft Environmental Impact Statement (DEIS) published in October, 1988. My decision is based upon that review.

### General Overview

Douglas-fir, western larch, grand fir, white fir, Engelmann spruce, and subalpine fir timber stands in the Pacific Northwest Region have been subjected to a major outbreak of western spruce budworm. This outbreak has affected approximately 7 million acres since it was first detected in 1980. The 1988 infestation was estimated to total about 2.8 million acres and additional defoliation is expected.

### Scope of the Program and Decision

The decision I am making is to select a method for direct suppression of the current western spruce budworm outbreak. This is a programmatic decision and will be applied to areas being considered for suppression activities throughout the Pacific Northwest Region. Site-specific environmental analyses for individual projects will comply with the policy and direction documented by this decision.

The scope of this FEIS considers management options for direct suppression of epidemic western spruce budworm populations. I recognize that direct suppression of insect populations is only one measure to be taken in an integrated pest management program. Other measures include prevention, monitoring, and continuing evaluation. Direct suppression is needed not only to reduce epidemic populations, but also to provide time for implementation of long range prevention strategies.

This EIS does not directly address methods for preventing future epidemics. However, I am committed to managing forests through long-term prevention of insect and disease epidemics. The Region is working toward long-term pest management through proven silvicultural methods. Some Silviculturists in this Region are already beginning to implement silvicultural prescriptions that are designed to facilitate pest management. These silvicultural methods can be integrated with forest management multiple-use goals and objectives. In addition, we are developing ways to incorporate pest management considerations into the computer simulation models we use for land and resource management planning.



## Analysis Process

The western spruce budworm FEIS examines Alternatives for management of epidemic populations. Steps taken in preparing this document included:

- public involvement throughout the process,
- identifying issues and determining the scope of the decision,
- developing alternative courses of action,
- analyzing the effects of the Alternatives,
- identifying the Preferred Alternative(s),
- publishing the DEIS,
- analyzing public comments on the DEIS,
- preparing a FEIS, and
- selecting a final Preferred Alternative to be implemented.

This decision is a culmination of that process.

## THE DECISION

Based upon the FEIS, it is my decision is to implement Alternative E. This Alternative was developed in consideration of public comments and concerns which addressed our Draft EIS. It is largely a composite of elements described in Alternatives B and D. This Alternative provides for direct suppression of budworm infestations using Bacillus thuringiensis (B.t.) and carbaryl. The biological insecticide B.t. will be the treatment of choice. However, carbaryl may be used in the event that B.t. is unavailable or is expected to be ineffective in site-specific instances. Examples of situations in which the use of carbaryl might be warranted are:

- When B.t. is not available.
- When high value stands are infested by rapidly expanding western spruce budworm populations and effective insect control requires an insecticide that has both contact and residual properties.
- In research and pilot test projects designed to evaluate new formulations or reduced dosages of carbaryl.

This record of decision documents my selection of the alternative and my rationale for its selection. The decision to use B.t. or carbaryl within treatment areas will be made in project-specific environmental analyses. The resources and environment within each area will be considered in the decision



making process. Human habitation and the frequency of use within the analysis area will be given primary consideration. Formulations of B.t. could be adjacent to but not over streams or other bodies of water. Treatment with carbaryl would require that a buffer strip be maintained along streams or around other bodies of water. The decision to use carbaryl for direct control of western spruce budworm will be on a case by case basis, based on biological evaluations conducted by entomologists on my Forest Pest Management staff, and subject to my approval.

Multiple-use management practices in the infested areas will continue, though scheduling and timing of these activities may be affected by the budworm epidemic. Timber management prescriptions may need to be modified in damaged timber stands.

#### RATIONALE

I considered fully the environmental consequences of the alternatives as described in the FEIS. In addition to this, several factors weighed heavily in my selection. I considered three primary sources of information while weighing the merits of each Alternative: 1) resource management objectives for the Pacific Northwest Region; 2) the results of environmental analysis; and 3) what we learned from letters of public response.

Resource management goals include managing the forest to enhance a diversity of forest values; including visual resources, recreation opportunities, wildlife habitat and timber production. In evaluating the Alternatives, I considered the effects of western spruce budworm damage on all forest resources; as well as the potential effects of proposed management activities.

The analysis determined that both B.t. and carbaryl are effective tools for reducing western spruce budworm populations to acceptable levels. The analysis also indicates that health and environmental risks of both of these insecticides can be managed to be kept within acceptable safe use limits.

In their response to the DEIS, the public was generally in favor of direct management of the western spruce budworm. However, people want management practices to be effected while protecting the human environment as well as all other resources. Specific concerns were expressed for possible threats to wildlife, water quality and anadromous or fresh water fisheries. The Alternatives most favored by the public in response to the DEIS were B (B.t. only) and D (a combination of B.t. and carbaryl).

My decision is intended to respond to public health concerns, using knowledge gained from the EIS process while meeting basic resource management goals. Alternative E provides for the use of a biological primary control method. B.t. will be the treatment of choice. This Alternative also provides for instances when chemical insecticides would be the only effective means of control. Both of these insecticides have equal application cost rates, and usually have similar effectiveness in reducing budworm populations to acceptable, non-damaging levels.



## ALTERNATIVES CONSIDERED

Following the scoping of issues, field reconnaissance, and data collection by the Interdisciplinary Team, and the studies of existing resource inventories, population spread and toxicology studies, the process of alternative development began.

Alternatives were developed through an issue-driven process designed to address both Forest Service and public concerns. Both an Interdisciplinary Team of specialists and public comments were used to design alternatives. The Interdisciplinary Team developed and evaluated various alternatives which addressed one or more issues identified.

Five Alternatives were developed. The first four were presented in the Draft Environmental Impact Statement issued in October, 1988. These addressed Issues that the public helped us identify during the scoping process. The Issues were a focal point for our analysis. The following is a brief description of each Alternative. The fifth, Alternative E, was developed in response to public comments following publication of the DEIS. Other Alternatives were considered in Chapter II of the DEIS, but were not developed in the analysis process.

### Alternative A (No Action)

This Alternative allows no intervention in the western spruce budworm infestation cycle. The epidemic would run a course subject only to natural, unpredictable controls. The No Action Alternative forms a baseline against which all other Alternatives are compared.

### Alternative B

This Alternative provides for a direct suppression strategy using the biological insecticide B.t. only. Suppression projects would protect timber, recreation, and visual resources which are expected to sustain unacceptable damage. Treatment would involve the aerial application of B.t. to selected areas. Alternative B would reduce western spruce budworm populations to non-damaging levels.

Alternative B is one of the Preferred Alternatives (along with D) identified in the Draft EIS. It is also the environmentally preferable Alternative.

### Alternative C

This Alternative prescribes a direct suppression strategy which requires application of the chemical insecticide, carbaryl. Suppression projects would protect those resources which are expected to sustain unacceptable damage. At this time, carbaryl is the most effective chemical insecticide for use in suppressing budworm populations. It is registered by the Environmental Protection Agency as safe for forest application. Carbaryl would reduce western spruce budworm populations to non-damaging levels.



## Alternative D

This Alternative provides for the combined use of B.t. and carbaryl. Alternative D proposes a program for suppression projects to protect resources at risk of unacceptable damage. The choice of whether to use carbaryl or B.t. in a treatment area would be determined on a site-specific basis.

Alternative D was one of two Preferred Alternatives (along with B) identified in the Draft EIS.

## Alternative E (Selected)

Alternative E is a modification of Alternatives B and D, developed after review of public response to the DEIS. This Alternative provides for direct suppression of the western spruce budworm, using the biological insecticide Bacillus thuringiensis (B.t.) as the treatment of choice. Alternative E also provides that carbaryl, a chemical insecticide, could be used in rare and extraordinary circumstances.

Alternative E is the Preferred Alternative identified in the FEIS.

## ISSUES AND RESPONSES

During the early phase of the environmental analysis process for the DEIS, the public helped us to identify the important Issues. The following is a brief summary of the eight Issues which emerged during the scoping process and were supported by comments to the DEIS, and how my selected Alternative responds to each of them. Appendix A includes information on public involvement and detailed responses.

### Economic Implications

Spruce budworm can cause damage that results in lost timber growth and yield. Visual quality may be lowered by spruce budworm infestations as foliage becomes red. A strong concern was expressed for small communities' economies which are dependent, in part, upon timber or recreation income.

The selected Alternative provides for management of western spruce budworm populations to protect high value resources.

### Effectiveness Of Available Treatment Methods

Many people are concerned about the effectiveness of B.t. or carbaryl in treatment of western spruce budworm infestations.

The FEIS considers the results of insecticide applications within the Pacific Northwest Region. This FEIS establishes Standards and Guidelines to ensure effective treatment. The analysis also found that both B.t. and carbaryl treatments are likely to reduce budworm populations to levels below an average of one larva per branch tip.

## Effects On Fish, Wildlife, And Domestic Animals

Several concerns were raised about the effects of control projects on fisheries, wildlife and domestic animals. Increased human activity during control projects could affect deer and elk during fawning and calving. Similar concerns were expressed for bald eagle nesting territories located within proposed treatment areas. Questions were also raised about the health effects of B.t. and carbaryl on wildlife and fish populations. Finally, people are concerned that domestic animals might be affected by treatments.

My decision addresses the concerns regarding fisheries, wildlife and domestic animals in several ways. The FEIS prescribes mitigation measures which would reduce disturbance during control activities. Standards and Guidelines for the application of insecticides have been developed, and would avoid disturbance in sensitive elk calving and bird nesting habitat areas. Coordination with Forest Service Area Ecologists and applicable State agencies will ensure that sensitive areas are avoided.

The FEIS also provides for buffer zones around aquatic habitat to prevent direct exposure of fish to the chemical carbaryl, and its carriers, kerosene and diesel oil. Neither B.t. or carbaryl will be applied directly over water. B.t. will be applied up to the edges of lakes and streams. When carbaryl is applied these areas will be buffered by strips of untreated areas.

Standards and Guidelines discussed in the FEIS, Appendix C, require that grazing and apiary permittees be notified before suppression activities begin. Aircraft will be instructed to avoid low level flights over adjacent farms and pastures to avoid disturbance of farm animals.

## Effects On Scenic Values And Recreation Use

People are concerned that damage caused by the western spruce budworm outbreak will affect the visual quality of forest landscapes.

The FEIS provides for direct treatment of high value visual resources that are at risk of visual quality reduction due to the western spruce budworm infestation. Treatment will avert most of the future predicted loss possible in an epidemic of this size.

## Potential For Increased Risk of Wildfire

Epidemic spread of western spruce budworm infestations will cause a substantial increase in the amounts of fuel which could support a wildfire. Fuel loading increases as needles, branches and entire trees drop to the forest floor. The public raised a concern that this additional fuel will increase fire potential and severity.

My decision allows for direct suppression of western spruce budworm populations. When mortality attributable to the epidemic is reduced the potential for consequent wildfire will also be reduced.



## Hydrologic Effects of Treatment or Non-treatment

People are concerned about the effects of the western spruce budworm infestation on water quality and quantity. Defoliation and tree mortality due to budworm damage could influence snowpack levels, seasonal snowmelt, stream temperatures, turbidity, overland flows, as well as sedimentation caused by timber salvage. There is also a concern about chemicals entering domestic and municipal water supplies.

The results of our analyses indicate that neither the the western spruce budworm epidemic nor proposed management strategies will have measurable effects on water quality and quantity. Predicted levels of defoliation and mortality attributable to the budworm are not large enough to effect changes in either the quality or quantity of water produced within the drainages.

Because no insecticides will be applied over streams or bodies of water, water quality will not be affected by suppression activities. Carbaryl will not be applied in domestic or municipal watersheds. The FEIS prescribes specific mitigating measures to protect streams and surface water from accidental spills. All State laws concerning application procedures near streams and bodies of water will be followed.

## Timeliness Of Treatment

Some public comments suggest that the Forest Service has responded too slowly to the western spruce budworm infestation.

This FEIS sets the direction and framework for treatment. It will not be possible or practical to treat all infested stands. Potential host stands will be monitored for increases in western spruce budworm populations. Site-specific analyses will be performed to identify priorities among the stands that would benefit from suppression activities. The potential for unacceptable resource damage is a primary concern.

## Human Health

Some segments of the public have strong concerns that insecticides either pose an immediate hazard to human health, or have the capacity to cause health problems in the future.

My decision assigns primary importance to the health of forest workers and the public. Mitigation measures were developed to protect human health. These measures include scoping and environmental analysis, a human health risk management plan, and a public information plan regarding treatment activities and their timing. In addition to these requisite measures, other measures will be developed as necessary for each proposed plan.

In addition to issues identified during the scoping process, the public raised other concerns following release of the DEIS in October 1988. During the 45

day public comment period we received 101 responses to the DEIS. A summary of the public response is located in Appendix A of the FEIS.

## EXPECTED RESULTS

### Mitigating Measures

Mitigating measures are presented and discussed at length in Chapter IV of the FEIS, and in Appendix C, Standards and Guidelines. These measures were developed to reduce, avoid, minimize, rectify or compensate for impacts on the environment and human health which might result from western spruce budworm management activities.

All proposed mitigation measures will comply with Federal and state laws. Forest Service Manuals and land management planning documents, past experience, and current research were used as guidelines in developing the mitigation measures. Below is a synopsis of these measures.

For all proposed projects:

- Conduct scoping and site-specific environmental analysis for each proposed project.
- Verify the need for treatment with an early spring larval sample before commencement of treatment.
- Prepare a human health risk management plan for each project.
- Prepare a public information plan to notify the public when and where spray operations will take place.
- Application of pesticides will be allowed only when weather conditions are favorable and are within the manufacturer's recommendations.
- Application aircraft will be accompanied by an observation aircraft and qualified aerial observer.
- Prepare a contingency plan outlining procedures for dealing with accidents and spills.
- Comply with all State and Federal laws.
- Comply with the Forest Service Health and Safety Handbook.
- Follow insecticide label directions.
- Protective clothing will be worn by all workers (both Forest Service employees and contract workers) involved in mixing and loading operations.



- Implement spray strategies designed to confine spray to prescribed boundaries of treatment areas.
- Monitor effectiveness of all mitigation measures during spray operations.

For proposed projects involving the use of carbaryl:

- All streams and bodies of water within the treatment area will have untreated buffer zones, to prevent spray drifting into the water or riparian vegetation.
- Use pilot vehicles when transporting materials within municipal watersheds.
- All occupancy sites such as campgrounds, summer homes, cabins, residences, resorts, etc, will have no carbaryl spray application closer than 1/4 mile from them.
- Carbaryl will not be sprayed within domestic and municipal watersheds.

#### Implementation Direction

This FEIS and Record of Decision provides direction for managers of annual western spruce budworm control programs. All future western spruce budworm management decisions will be made in compliance with the processes described in this document.

Treatment considerations will be based upon spruce budworm population detection surveys and economic modeling. Consideration will also be given to other non-monetary values such as recreation, wildlife habitat and visual qualities.

Site-specific environmental analyses will be conducted for all proposed treatment units. Any prescribed treatment must first consider the use of B.t. If carbaryl is used, it will not be applied in domestic or municipal watersheds, areas of high human population density, or areas of high recreation use.

Annual programs of control will follow procedures outlined in the National Environmental Policy Act (NEPA) guidelines. Public involvement will be an important component of the environmental analysis process. Results of site-specific analyses will determine the type of environmental document (Environmental Assessment or Environmental Impact Statement) required (FSM 1950 and FSH 1909.15).

## IMPLEMENTATION AND APPEAL

This decision may be implemented after 30 days from the date that the Environmental Protection Agency's Notice of Availability of the Final EIS appears in the Federal Register.

This decision is subject to appeal pursuant to 36 CFR 217 (published in the Federal Register, Volume 54, Number 13, January 23, 1989). A request for stay may be part of the notice of appeal.

A stay, if granted, stops initial implementation of the decision while appeal is considered on its merits. A stay must be filed with the Reviewing Officer, and copies sent simultaneously to other appellants, intervenors, and the Deciding Officer.

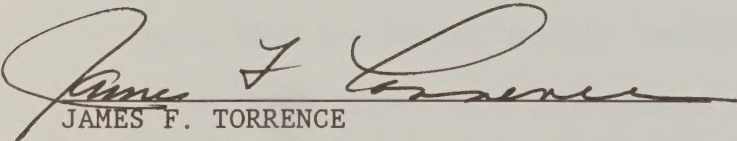
Notice of appeal must be in writing and submitted to the Reviewing Officer:

F. Dale Robertson  
Chief, Forest Service  
U.S. Department of Agriculture  
South Bldg., 12th & Independence Ave., S.W.  
P.O. Box 9690  
Washington, D.C. 20090-6090

The notice of appeal must include sufficient narrative evidence and argument to show why this decision should be changed or revised (36 CFR 217.9). The notice of appeal and statement of reasons must be filed within 90 days of the date of this decision, and sent simultaneously to the Deciding Officer:

James F. Torrence, Regional Forester  
USDA Forest Service  
Pacific Northwest Region  
319 S.W. Pine Street  
P.O. Box 3623  
Portland, Oregon 97208-3623

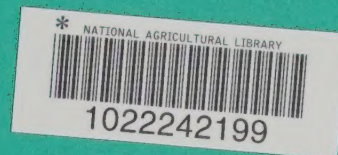
No decision on site-specific projects is made in this document. Final decisions on proposed projects will be made after site-specific analysis and documentation in compliance with NEPA regulations.

  
JAMES F. TORRENCE  
Regional Forester  
Pacific Northwest Region

June 30, 1989

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Date





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